

# 90-6  
*authorization complete*

*O'Quinn*  
EAD 773.01

June 12, 1990

Dr. Robert Hamilton  
Raven Services Corporation  
2200 Sixth Avenue, Suite 519  
Seattle, WA 98121

Dear Dr. Hamilton:

This letter authorizes Raven Services to perform work authorization 90-6, "1990 Quarterly Monitoring of the Georgetown Flume." Enclosed is the scope of work and project budget; the total budget allowed for this project is \$7,150.00. Of this total, \$1,040 is for WBE subcontractor work and \$2,450 is for MBE subcontractor work.

Thank you for your assistance to City Light.

Sincerely,

*Kirvil Skinnarland*  
Kirvil Skinnarland, Director  
Environmental Affairs Division

CO:pb

Enclosure

bcc: w/enclosure  
O'Quinn  
Tenney  
EAD 773.01  
File

SCL 04999

---

CTY0050010

SEA290488

## Work Order 90-6

### 1990 Quarterly Monitoring of the Georgetown Flume

#### I. SCOPE OF WORK

In November 1985, PCB-contaminated sediments were removed from the Georgetown Flume system. PCB-contaminated soils in the catch basin area of the Steam Plant yard were also excavated during the 1985 cleanup. In 1987, to comply with a Department of Ecology order and to ensure that the Flume was not recontaminated with PCBs, City Light established a monitoring program. Since 1987, Raven Systems has collected sediment samples along the Flume on a quarterly basis. This monitoring program will continue until the Flume is closed and filled in. Sample locations, which are described below, are consistent with collection points originally established in 1987.

In 1989, City Light began an additional sampling project designed to determine PCB levels in the Flume's wooden interior lining. Several wood core samples from the Flume's floorboards were collected and analyzed for PCB content. This sampling will continue and be completed in 1990. In addition, the 1990 monitoring program will include sampling of the catch basin area of the Steam Plant yard. No sampling has been conducted in this area since the 1985 cleanup. The location of wood core and soil samples is described in section II below.

Finally, water temperatures at the flume head and at the end of the double pipes will be recorded each quarter. The state of the tide and Flume sediment and water conditions will also be reported.

#### II. SAMPLES

##### Routine PCB Monitoring:

Sediment samples will be collected at 7 monitoring points along the flume as follows:

#1 and	
#2 - Flume Head	2 composites of 2 subsamples
#3 - Head of Double Pipes	1 composite of 2 subsamples
#4 - Above Tidegate	1 composite of 4 subsamples
#5 - Below Tidegate	1 composite of 4 subsamples
#6 - Willow Street	1 composite of 2 subsamples
#7 - Slip 4 Outfall	1 composite of 2 subsamples

SCL 05000

CTY0050011

SEA290489

### Additional 1st Quarter Sample Collection:

During the first quarter only, Raven will collect soil samples from the 1985 cleanup site near the Steam Plant building. In addition, 4 wood core samples will be collected along the flume above the Tidegate; this will complete characterization of the wooden flume sections.

At the 1985 cleanup site, monitoring will consist of 3 composite soil samples of 3 subsamples each. Soil sample collection should be concentrated in the catch basin area since the probability of recontamination is highest in this portion of the Steam Plant yard.

All samples shall be analyzed for PCBs at the MBE laboratory in Portland, Oregon. Analytical results shall be reported as ppm PCB citing specific aroclor mixtures detected. Original lab data describing QA/QC procedures, detection limits plus any other relevant information shall be included with each quarterly report.

### III. SAMPLE METHODOLOGY AND REPORT

#### A. Methodology

1. Collection, storage, processing, and analysis of samples will be according to current United States Environmental Protection Agency (USEPA) standards. PCB analysis will follow Method 8080 (USEPA document SW-846, 1986).
2. Sampling equipment will be decontaminated between each sample. Solvent rinse will be collected.
3. Appropriate protective gear will be used to ensure safety for the sampling crew.
4. After analysis is completed, any remaining sample materials, if they constitute a hazardous material, may be returned to City Light for appropriate disposal.
5. Drawings will be provided on which the location of samples will be marked.
6. Sample chain-of custody procedures will be used when requested.

SCL 05001

B. Report

This report will include:

1. Description of the conditions and date(s) of sample collection.
2. Documentation detailing all steps taken to prepare sampling equipment and containers so as to avoid sample contamination or cross-contamination.
3. Description of containers, procedures, reagents, etc., used for sample collection, preservation, transport, and storage.
4. Statement of field sampling procedures.
5. Sample preservation methods and holding time.
6. Sample chain-of-custody procedures when required.
7. Documentation of methods used for sample processing and analysis including any changes from the test procedures in Method 8080 in method, apparatus, reagents, calibration, quality control, extraction, separation, gas chromatography, or calculations.
8. Laboratory results are to be expressed on a dry-weight basis and by identifying PCB composition or Arochlor species; results also will include a brief description of the sample matrix; e.g., concrete, soil, water, gravel etc.).
9. Documentation of each sampling site.
10. Interpretation of the data along with conclusions and recommendations.

IV. PROJECT SCHEDULE

<u>Deliverable Items</u>	<u>Due Date</u>
Sample collection	Day 0
Draft report	Day 21
Final report to EAD	one week after review of draft by EAD

SCL 05002

V. PROJECT BUDGET

1st Quarter Budget:

Startup: \$ 90.00 ✓

Field:

project manager-reconnaissance  
(3 hours @ \$47/hour) 141.00 ✓

project manager  
(8 hours @ \$47/hour) 376.00 ✓

Office and Preparation:

project manager  
(4 hours @ \$45/hour) 180.00 ✓ (90)

project assistant  
(7 hours @ \$35/hour) 245.00 ✓

administrative support  
(2 hours @ \$24/hour) 48.00 ✓

WBE graphics preparation  
(14 hours @ \$40/hour) 560.00 ✓

15% WBE carrying cost  
(15% x \$560.00) 84.00 ✓

Other:

MBE PCB analysis  
(10 sediment samples @ \$70/each) 700.00 ✓

(4 wood core samples @ \$70/each) 280.00 ✓

15% MBE carrying cost  
(15% x 980.00) 147.00 ✓

chemicals and glassware 29.00 ✓

mileage and travel  
(40 miles @ .25/mile) 10.00 ✓

---

Subtotal - 1st Quarter Budget \$2,890.00

SCL 05003

2nd Quarter Budget:

Startup: 90.00

Field:

project manager  
(6 hours @ \$47/hour) 282.00

Office and Preparation:

project manager  
(4 hours @ \$45/hour) 180.00  
administrative support  
(1 hour @ \$24/hour) 24.00  
WBE graphics preparation  
(4 hours @ \$40/hour) 160.00  
15% WBE carrying cost  
(15% x \$160.00) 24.00

Other:

MBE PCB analysis  
(7 sediment samples @ \$70/each) 490.00  
15% MBE carrying cost  
(15% x \$490.00) 73.50  
chemicals and glassware 19.00  
mileage and travel  
(30 miles @ .25/mile) 7.50

---

Subtotal - 2nd Quarter Budget \$1,350.00

SCL 05004

3rd Quarter Budget:

Startup: \$ 90.00

Field:

project manager  
(6 hours @ \$47/hour) 282.00

Office and Preparation:

project manager  
(4 hours @ \$45/hour) 180.00  
administrative support  
(1 hour @ \$24/hour) 24.00  
WBE graphics preparation  
(4 hours @ \$40/hour) 160.00  
15% WBE carrying cost  
(15% x \$160.00) 24.00

Other:

MBE PCB analysis  
(7 sediment samples @ \$70/each) 490.00  
15% MBE carrying cost  
(15% x \$490.00) 73.50  
chemicals and glassware 19.00  
mileage and travel  
(30 miles @ .25/mile) 7.50

---

Subtotal - 3rd Quarter Budget \$1,350.00

SCL 05005

CTY0050016

SEA290494

4th Quarter Budget:

Startup:

\$ 90.00

Field:

project manager  
(8 hours @ \$47/hour)

282.00 killed  
~~376.00~~

Office and Preparation:

project manager  
(6 hours @ \$45/hour)  
administrative support  
(2 hours @ \$24/hour)  
WBE graphics preparation  
(4 hours @ \$40/hour)  
15% WBE carrying cost  
(15% x \$160.00)

270.00

48.00

160.00

~~24.00~~

Other:

MBE PCB analysis  
(7 sediment samples @ \$70/each)  
15% MBE carrying cost  
(15% x \$490.00)  
chemicals and glassware  
mileage and travel  
(40 miles @ .25/mile)

490.00

73.50

~~19.00~~

~~10.00~~

Subtotal - 4th Quarter Budget

\$1,560.50

TOTAL 1990 BUDGET

\$7,150.50

SCL 05006

CTY0050017

SEA290495



RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Voucher # 186  
7/2/90  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/ Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90		Startup	1/\$90/each	\$ 90.00 ✓
		FIELD:		
		Project Mgr, Reconnaissance	3/\$47/hour	141.00 ✓
		Project Manager	8/\$47/hour	376.00 ✓
		TOTAL		\$ 607.00

DIV. 120  
W.O. OR ACCT 70468-06  
B.I. 31  
P.E. 1220  
APPROVED [Signature]  
STAFF OK [Signature]  
DATE 7/20/90  
ENCLOSURE # C860641 E

CL:CU  
CT

SCL 05007

CTY0050018

SEA290496

Continuation Page  
Voucher # 186  
Contract #3840  
Work Order #90-6  
Budgeted: \$7,150.50 ✓

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
Startup	\$ 90.00	\$ 90.00
FIELD:		
Raven Project Manager,		
Reconnaissance	141.00	141.00
Raven Project Manager	<u>376.00</u>	<u>376.00</u>
TOTAL[S]	\$ 607.00	\$ 607.00 ✓

SCL 05008

CTY0050019

SEA290497

RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Ca

Voucher # 195  
8/1/90  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90	7/19/90	Office and Preparation:		
		Project Manager	2/\$45/hour	\$ 90.00 ✓
		Project Assistant	7/\$35/hour	245.00 ✓
		Administrative Support	2/\$24/hour	48.00 ✓
		WBE Graphics Prep	14/\$40/hour	560.00 ✓
		Raven WBE Carrying Cost @ 15%		84.00 ✓
		Other:		
		MBE PCB Analysis, sediments	10/\$70/each	700.00 ✓
		wood cores	4/\$70/each	280.00 ✓
		Raven 15% MBE Carrying Cost		147.00 ✓
		Chemicals, glassware		29.00 ✓
		Mileage, van	40/.25/mile	10.00 ✓
		<b>TOTAL</b>		<b>\$2,193.00</b> ✓

DIV. 120  
W.O. OR ACCT 70468-06  
B.I. 31  
P.E. Beryl D. Tenney  
APPROVED \_\_\_\_\_  
STAFF OK at  
DATE 8/1/90  
ENCLOSURE # C86064 E

SCL 05009

CTY0050020

SEA290498

Continuation Page  
Voucher # 195  
Contract #3840  
Work Order #90-6  
Budgeted: \$7,150.60 7

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager,		
Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	90.00	90.00
Project Assistant	245.00	245.00
Administrative Support	48.00	48.00
WBE Graphics	560.00	560.00
Raven 15% WBE Carrying Cost	84.00	84.00
OTHER:		
MBE Sediments Analysis	700.00	700.00
MBE Wood Core Analysis	280.00	280.00
Raven 15% MBE Carrying Cost	147.00	147.00
Chemicals, glassware	29.00	29.00
Mileage, van	10.00	10.00
TOTAL[S]	\$2,193.00	\$2,800.00

SCL 05010

CTY0050021

SEA290499

20

RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Voucher # 198  
9/4/90  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/ Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90	8/23/90	Startup	1/\$90/each	\$ 90.00 ✓
		FIELD: Project Manager	6/\$47/hour	\$ 282.00 ✓
		TOTAL		\$ 372.00 ✓

120  
DIV. 70468-06  
W.O. OR ACQ. 1220  
B.I. 31  
P.E. \_\_\_\_\_  
APPROVED \_\_\_\_\_  
STAFF OK C. J. D.  
DATE 9/26/90  
ENCLOS. # C860041 E

SCL 05011

Continuation Page  
Voucher # 198  
Contract #3840  
Work Order #90-6  
Budgeted: \$7,150.50

7150

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
----------------------	--	---

1ST QUARTER BUDGET:

Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager,		
Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	90.00	90.00
Project Assistant	245.00	245.00
Administrative Support	48.00	48.00
WBE Graphics	560.00	560.00
Raven 15% WBE Carrying Cost	84.00	84.00
OTHER:		
MBE Sediments Analysis	700.00	700.00
MBE Wood Core Analysis	280.00	280.00
Raven 15% MBE Carrying Cost	147.00	147.00
Chemicals, glassware	29.00	29.00
Mileage, van	10.00	10.00
SUBTOTAL[S]	\$2,193.00	\$2,800.00

2ND QUARTER BUDGET:

STARTUP	\$ 90.00	\$ 90.00
FIELD:		
Project Manager	<u>282.00</u>	<u>282.00</u>
SUBTOTAL[S]	\$ 372.00	\$ 372.00
TOTAL[S]	\$ 372.00	\$3,172.00 ✓

SCL 05012

CTY0050023

SEA290501

RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

120  
70468-06  
31  
1220  
10/29/90  
C 860641 E  
Voucher # 200  
10/1/90  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/ Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90		SPRING, 1ST QTR, OFFICE: Raven Project Manager	2/\$45/hour	\$ 90.00 ✓
		SUMMER, 2ND QTR, OTHER: MBE PCB Analysis	7/\$70/each	490.00 ✓
		Raven 15% Carrying Cost		73.50 ✓
		Chemicals, glassware		19.00 ✓
		Mileage, Van		7.50 ✓
		<b>TOTAL</b>		<b>\$ 680.00 ✓</b>

SCL 05013

cc: Tenney  
D'Quinn

CTY0050024

SEA290502

Continuation Page  
 Voucher # 200  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: ( .50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>1ST QUARTER BUDGET:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager, Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	90.00	180.00
Project Assistant	0.00	245.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	560.00
Raven 15% WBE Carrying Cost	0.00	84.00
OTHER:		
MBE Sediments Analysis	0.00	700.00
MBE Wood Core Analysis	0.00	280.00
Raven 15% MBE Carrying Cost	0.00	147.00
Chemicals, glassware	0.00	29.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 90.00	\$2,890.00
<u>2ND QUARTER BUDGET:</u>		
STARTUP	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OTHER:		
MBE PCB Analysis	490.00	490.00
Raven 15% Carrying Cost	73.50	73.50
Chemical, glassware	19.00	19.00
Mileage, van	7.50	7.50
SUBTOTAL[S]	\$ 590.00	\$ 962.00
TOTAL[S]	\$ 680.00	\$3,852.00

SCL 05014



RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Voucher # 207  
10/31/90  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

Date of Order	Date of Delivery/Service	Service[s] Provided	Quant/Cost/Unit	Amount
6/12/90	10/25/90	SUMMER, 2ND QTR, OFFICE:		
		Project Manager	4/\$45/hour	\$180.00 ✓
		Administrative Support	1/\$24/hour	24.00 ✓
		WBE Graphics	4/\$40/hour	160.00 ✓
		Raven 15% WBE Carrying Cost		24.00 ✓
		<b>SUBTOTAL</b>		<b>\$388.00</b>
		FALL, 3RD QTR, STARTUP:		\$ 90.00
		FALL, 3RD QTR, FIELD:		
		Project Manager	6/\$47/hour	282.00 ✓
		FALL, 3RD QTR, OTHER:		
		Chemicals, glassware	1/\$19/each	19.00 ✓
		Mileage	30/\$.25/mile	7.50 ✓
		<b>SUBTOTAL</b>		<b>\$398.50</b>
		<b>TOTAL BILLED:</b>		<b>\$786.50</b>

DIV. 120  
W.O. NO. 70468806  
B.I. 31  
P.E. 1220  
APPROVED Cheryl D. Tenney  
STAFF OK  
DATE 11/14/90  
ENCUMB. # 290041E

SCL 05015

CTY0050026

SEA290504

Continuation Page  
 Voucher # 207  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: ( .50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>1ST QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager, Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	0.00	180.00
Project Assistant	0.00	245.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	560.00
Raven 15% WBE Carrying Cost	0.00	84.00
OTHER:		
MBE Sediments Analysis	0.00	700.00
MBE Wood Core Analysis	0.00	280.00
Raven 15% MBE Carrying Cost	0.00	147.00
Chemicals, glassware	0.00	29.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 0.00	\$2,890.00
<u>2ND QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	180.00	180.00
Administrative Support	24.00	24.00
WBE Graphics	160.00	160.00
Raven 15% Carrying Cost	24.00	24.00
OTHER:		
MBE PCB Analysis	0.00	490.00
Raven 15% Carrying Cost	0.00	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 388.00	\$1,350.00

SCL 05016

3RD QUARTER:

Startup	\$ 90.00	\$ 90.00
---------	----------	----------

FIELD:

Project Manager	282.00	282.00
-----------------	--------	--------

OTHER:

Chemical, glassware	19.00	19.00
---------------------	-------	-------

Mileage, van	7.50	7.50
--------------	------	------

SUBTOTAL[S]	\$ 398.50	\$ 398.50
-------------	-----------	-----------

TOTAL:	\$ 786.50	\$4,638.50
--------	-----------	------------

SCL 05017

CTY0050028

SEA290506

RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

CO

Voucher # 210  
12/3/90  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90	11/30/90	FALL, 3RD QTR, OFFICE:		
		Project Manager	2/\$45/hr	\$ 90.00
		WBE Graphics	4/\$40/hr	160.00
		Raven 15% WBE Carrying Cost		24.00
		FALL, 3RD QTR, OTHER:		
		MBE Analysis	7/\$70/each	490.00
		Raven 15% MBE Carrying Cost		73.50
		TOTAL		<u>\$837.50</u>

DATE 120  
W.O. OR ACCT 70468-06  
B.I. 31  
P.E. 1220  
APPROVED SKT  
START OF OK  
DATE 12/1/90  
ENCUMB. # 0860416

SCL 05018

cc: CO  
CT

CTY0050029

SEA290507

Continuation Page  
 Voucher # 210  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: (.50)  
 Balance: \$7,150.00 ✓

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>1ST QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager, Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	0.00	180.00
Project Assistant	0.00	245.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	560.00
Raven 15% WBE Carrying Cost	0.00	84.00
OTHER:		
MBE Sediments Analysis	0.00	700.00
MBE Wood Core Analysis	0.00	280.00
Raven 15% MBE Carrying Cost	0.00	147.00
Chemicals, glassware	0.00	29.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 0.00	\$2,890.00
<u>2ND QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
Administrative Support	0.00	24.00
WBE Graphics	0.00	160.00
Raven 15% Carrying Cost	0.00	24.00
OTHER:		
MBE PCB Analysis	0.00	490.00
Raven 15% Carrying Cost	0.00	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00

SCL 05019

CTY0050030

SEA290508

Continuation Page  
 Voucher # 210  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: (.50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>3RD QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	90.00	90.00
WBE Graphics	160.00	160.00
Raven WBE 15% Carrying Cost	24.00	24.00
OTHER:		
MBE Analysis, PCBs	490.00	490.00
Raven MBE 15% Carrying Cost	73.50	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 837.50	\$1,236.00
TOTAL:	\$ 837.50	\$5,476.00

SCL 05020

CTY0050031

SEA290509

06

RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Voucher # 214  
1/2/91  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90	12/6/90	FALL, 3RD QTR, OFFICE: Project Manager	2/\$45/hr	\$ 90.00
		Administrative Support	1/\$24/hr	24.00
		TOTAL		<u>\$114.00</u>

CONTRACT #	C8604HE
ORG UNIT	120
W.O.# / FERC#	70468-06
SFMS ACCOUNT	741190
DATE	7/11/91
APPROVED BY	<i>[Signature]</i>

W: CT  
CO

SCL 05021

Continuation Page  
 Voucher # 214  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: (.50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>1ST QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager, Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	0.00	180.00
Project Assistant	0.00	245.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	560.00
Raven 15% WBE Carrying Cost	0.00	84.00
OTHER:		
MBE Sediments Analysis	0.00	700.00
MBE Wood Core Analysis	0.00	280.00
Raven 15% MBE Carrying Cost	0.00	147.00
Chemicals, glassware	0.00	29.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 0.00	\$2,890.00
<u>2ND QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
Administrative Support	0.00	24.00
WBE Graphics	0.00	160.00
Raven 15% Carrying Cost	0.00	24.00
OTHER:		
MBE PCB Analysis	0.00	490.00
Raven 15% Carrying Cost	0.00	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00

SCL 05022

CTY0050033

SEA290511



Continuation Page  
 Voucher # 214  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: (.50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<b>3RD QUARTER:</b>		
Startup	\$ 0.00	\$ 90.00
<b>FIELD:</b>		
Project Manager	0.00	282.00
<b>OFFICE:</b>		
Project Manager	90.00	90.00
WBE Graphics	0.00	160.00
Raven WBE 15% Carrying Cost	0.00	24.00
Administrative Support	24.00	24.00
<b>OTHER:</b>		
MBE Analysis, PCBs	0.00	490.00
Raven MBE 15% Carrying Cost	0.00	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
<b>SUBTOTAL[S]</b>	<b>\$ 114.00</b>	<b>\$1,350.00</b>
<b>TOTAL:</b>	<b>\$ 114.00</b>	<b>\$5,590.00</b>

SCL 05023

CO

RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Voucher # 219  
2/1/91  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90		WINTER, 4TH QTR:		
		Startup	1/\$90/each	90.00
		FIELD:		
		Project Manager	6/\$47/hour	282.00
		OFFICE:		
		WBE Graphics	4/\$40/hour	160.00
		Raven WBE 15% Carrying Cost		24.00
		OTHER:		
		Chemicals, glassware		19.00
		Mileage, van		7.50
		TOTAL		\$582.50

SCL 05024

CONTRACT #	C860647E
QTY UNIT	120
	70468-06
	741190
DATE	2/13/91
APPROVED BY	<i>[Signature]</i>

CTY0050035

SEA290513

Continuation Page  
 Voucher # 219  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: ( .50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>1ST QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager,		
Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	0.00	180.00
Project Assistant	0.00	245.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	560.00
Raven 15% WBE Carry Cost	0.00	84.00
OTHER:		
MBE Sediments Analysis	0.00	700.00
MBE Wood Core Analysis	0.00	280.00
Raven 15% MBE Carrying Cost	0.00	147.00
Chemicals, glassware	0.00	29.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 0.00	\$2,890.00
<u>2ND QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
Administrative Support	0.00	24.00
WBE Graphics	0.00	160.00
Raven 15% Carrying Cost	0.00	24.00
OTHER:		
MBE PCB Analysis	0.00	490.00
Raven 15% Carrying Cost	0.00	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00

SCL 05025

Continuation Page  
Voucher # 219  
Contract #3840  
Work Order #90-6  
Budgeted: \$7,150.50  
Modif.: (.50)  
Balance: \$7,150.00 ✓

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>3RD QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
WBE Graphics	0.00	160.00
Raven WBE 15% Carrying Cost	0.00	24.00
Administrative Support	0.00	24.00
OTHER:		
MBE Analysis, PCBs	0.00	490.00
Raven MBE 15% Carrying Cost	0.00	73.50
Chemicals, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00
<u>4TH QUARTER:</u>		
Startup	\$ 90.00	\$ 90.00
FIELD:		
Project Manager	282.00	282.00
OFFICE:		
WBE Graphics	160.00	160.00
Raven WBE 15% Carrying Cost	24.00	24.00
OTHER:		
Chemicals, glassware	19.00	19.00
Mileage, van	7.50	7.50
SUBTOTAL[S]	\$ 582.50	\$ 582.50
TOTAL:	\$ 582.50	\$6,172.50

SCL 05026

13  
RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Co

Voucher # 226  
3/1/91  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/ Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90	Draft 2/25/91	<u>WINTER, 4TH QTR:</u>		
		FIELD:		
		Project Manager	2/\$47/hour	94.00 ✓
		OFFICE:		
		Project Manager	4/\$45/hour	180.00 ✓
		Administrative Support	2/\$24/hour	48.00 ✓
		OTHER:		
		MBE PCB Analysis	7/\$70/each	490.00 ✓
		Raven 15% MBE Carrying Cost		73.00 ✓ OK
		Mileage, van		2.50 ✓
		TOTAL		<u>\$887.50</u>

CONTRACT #	C860641 E
ORG UNIT	120
W.O.# / FERC#	70468-06
SFMS ACCOUNT #	741190
DATE	4/21/91
OK <i>ex/cab</i>	Cheryl D. Seany
APPROVED BY	

SCL 05027

cc: Co  
CT

CTY0050038

SEA290516

Continuation Page  
 Voucher # 226  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: (.50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>1ST QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager, Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	0.00	180.00
Project Assistant	0.00	245.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	560.00
Raven 15% WBE Carry Cost	0.00	84.00
OTHER:		
MBE Sediments Analysis	0.00	700.00
MBE Wood Core Analysis	0.00	280.00
Raven 15% MBE Carrying Cost	0.00	147.00
Chemicals, glassware	0.00	29.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 0.00	\$2,890.00
<u>2ND QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
Administrative Support	0.00	24.00
WBE Graphics	0.00	160.00
Raven 15% Carrying Cost	0.00	24.00
OTHER:		
MBE PCB Analysis	0.00	490.00
Raven 15% Carrying Cost	0.00	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00

SCL 05028

CTY0050039

SEA290517

Continuation Page  
 Voucher # 226  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: (.50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>3RD QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
WBE Graphics	0.00	160.00
Raven WBE 15% Carrying Cost	0.00	24.00
Administrative Support	0.00	24.00
OTHER:		
MBE Analysis, PCBs	0.00	490.00
Raven MBE 15% Carrying Cost	0.00	73.50
Chemicals, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00
<u>4TH QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	94.00	376.00
OFFICE:		
Project Manager	180.00	180.00
Administrative Support	48.00	48.00
WBE Graphics	0.00	160.00
Raven WBE 15% Carrying Cost	0.00	24.00
OTHER:		
MBE PCB Analysis	490.00	490.00
Raven 15% MBE Carrying Cost	73.00	73.00
Chemicals, glassware	0.00	19.00
Mileage, van	2.50	10.00
SUBTOTAL[S]	\$ 887.50	\$1,470.00
TOTAL:	\$ 887.50	\$7,060.00

*290.00 left*

SCL 05029

CO

RAVEN SERVICES CORPORATION  
2200 SIXTH AVENUE, SUITE 519  
SEATTLE, WASHINGTON 98121  
(206) 443-1126

Voucher # 232  
4/1/91  
Contract #3840

TO: SEATTLE CITY LIGHT  
OFFICE OF ENVIRONMENTAL AFFAIRS  
1015 THIRD AVENUE  
SEATTLE, WASHINGTON 98104

ATTENTION: CHERYL TENNEY

RE: CONSULTING SERVICE CONTRACT FOR SAMPLING & ANALYTICAL SERVICES  
PROJECT # C86-167  
WORK ORDER #90-6: "1990 Quarterly Monitoring of the  
Georgetown Flume"

<u>Date of Order</u>	<u>Date of Delivery/Service</u>	<u>Service[s] Provided</u>	<u>Quant/Cost/Unit</u>	<u>Amount</u>
6/12/90	3/25/91	<u>WINTER, 4TH QTR:</u>		
		OFFICE: Project Manager	2/\$45/hour	\$90.00
		TOTAL		\$90.00

*work auth.  
complete*

CONTRACT #	C 860641 E
ENG UNIT	120
PRO.# / FERC#	20468-06
NEWS ACCOUNT #	741130
DATE	4/10/91
REPORTED BY	<i>Cheryl Tenney</i>

*cc: [unclear]*

SCL 05030

CTY0050041

SEA290519



Continuation Page  
 Voucher # 232  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: ( .50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>1ST QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Raven Project Manager,		
Reconnaissance	0.00	141.00
Raven Project Manager	0.00	376.00
OFFICE AND PREPARATION:		
Project Manager	0.00	180.00
Project Assistant	0.00	245.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	560.00
Raven 15% WBE Carry Cost	0.00	84.00
OTHER:		
MBE Sediments Analysis	0.00	700.00
MBE Wood Core Analysis	0.00	280.00
Raven 15% MBE Carrying Cost	0.00	147.00
Chemicals, glassware	0.00	29.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 0.00	\$2,890.00
<u>2ND QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
Administrative Support	0.00	24.00
WBE Graphics	0.00	160.00
Raven 15% Carrying Cost	0.00	24.00
OTHER:		
MBE PCB Analysis	0.00	490.00
Raven 15% Carrying Cost	0.00	73.50
Chemical, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00

SCL 05031

Continuation Page  
 Voucher # 232  
 Contract #3840  
 Work Order #90-6  
 Budgeted: \$7,150.50  
 Modif.: (.50)  
 Balance: \$7,150.00

<u>Claimed Costs</u>	<u>Claimed for This Billing Period</u>	<u>Cumulative Claimed Through This Billing Period</u>
<u>3RD QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	282.00
OFFICE:		
Project Manager	0.00	180.00
WBE Graphics	0.00	160.00
Raven WBE 15% Carrying Cost	0.00	24.00
Administrative Support	0.00	24.00
OTHER:		
MBE Analysis, PCBs	0.00	490.00
Raven MBE 15% Carrying Cost	0.00	73.50
Chemicals, glassware	0.00	19.00
Mileage, van	0.00	7.50
SUBTOTAL[S]	\$ 0.00	\$1,350.00
<u>4TH QUARTER:</u>		
Startup	\$ 0.00	\$ 90.00
FIELD:		
Project Manager	0.00	376.00
OFFICE:		
Project Manager	90.00	270.00
Administrative Support	0.00	48.00
WBE Graphics	0.00	160.00
Raven WBE 15% Carrying Cost	0.00	24.00
OTHER:		
MBE PCB Analysis	0.00	490.00
Raven 15% MBE Carrying Cost	0.00	73.00
Chemicals, glassware	0.00	19.00
Mileage, van	0.00	10.00
SUBTOTAL[S]	\$ 90.00	\$1,560.00
TOTAL:	\$ 90.00	\$7,150.00

*TOTAL*  
*WBE = 1040*  
*MBE = 2450*

SCL 05032